

AMENDMENTS TO DRAWINGS

Drawing objections directed to margins (item 5), character of lines, number and letters (item 10) and shading (item 11), as well as numbers, characters and reference letters (item 12) are all addressed in the three replacement sheets filed herewith without introducing new matter.

REMARKS

Claim status and preliminary comments

Claims 1-7, 9-13, 15-21, 23-25 and 27-31 were pending in the case at the time of the Office Action. Each of the claims stands finally rejected as obvious at least two prior art references. A new independent claim 32 is presented.

Drawings

It is not clear why the Draftsperson's objections to the drawings were not made earlier and why it took over 18 months for review of the drawings. There was no objection to the drawings at the time of publication. The applicant presents new drawing sheets. They contain no new matter, although portions that have described as being in a particular color are now lined to shown that color

Claim amendments

A claim amendment is made to claim 20, to correct an error made in the prior Office Action response. Specifically, in amending the claim by removing the phrase "wherein said vertical speed indicator scale is elliptically-shaped", the applicant inadvertently moved the limitation "elliptically shaped" to the description of the "vertical speed indicator marker" instead of to the description of the "vertical speed indicator scale". As this is a correction of a typographical error, it is a non-narrowing amendment and should be entered, even in this response after final.

More importantly, a new claim 32, believed to distinguish the prior art of record, is provided.

Claim rejections under 35 U.S.C. 103

The Examiner has rejected claims 1-2, 5-7, 9-10, and 20-21 under 35 U.S.C. §103(a) as obvious over Maris '816 in combination with US Pat 5,844,504 to Etherington ("Etherington '504") and US Pat 6,473,003 to Horvath ("Horvath '003"). Applicants traverse this rejection.

Claims 3, 11 and 23 are rejected as obvious over a combination of Maris '816, Etherington '504, Horvath '003 and US Pat 6,686,851 to Gordon ("Gordon '851").

Claims 4, 12-13, 15, 24-25 and 27 are rejected as over a combination of Maris '816, Etherington '504, Horvath '003 and McElreath '151.

Claims 16 and 17 are rejected as obvious over a combination of Maris '816, Etherington '504, Horvath '003 and Staggs '541.

Claims 16 and 17 are rejected as over a combination of Maris '816, Etherington '504, Horvath '003 and McElreath '151.

Claims 28 and 29 are rejected as over a combination of Maris '816, Etherington '504, Horvath '003, US Pat 5,739,771 to Fisher ("Fisher '771) and Gralnick '733.

Claims 30-31 are rejected as over a combination of Maris '816, Etherington '504, Horvath '003, US Pat 5,739,771, Fisher ("Fisher '771), Gralnick '733 and Gordon '851.

The applicant first notes that the Examiner has not made any rejections based on the Carriker '105 reference previously cited and it is respectfully suggested that any rejections based upon Carriker '105 have been overcome.

Of the rejected claims, claims 1, 20 and 32 are independent and will be addressed first.

Claim 1

The primary combination of prior art used throughout this Office Action is a combination of Maris '816 with Etherington '504. The Examiner admits that Maris '816 does not teach an arcuate vertical speed indicator scale, but states that Etherington '504 shows that arcuate VSI scales are well-known. If that is the Examiner's point, then the combination must fail. Maris '816 teaches that the linear device it discloses is an improvement over the prior art arcuate devices, two of which are depicted at Figs. 1a and 1b of Maris '816 (and the accompanying text at paragraphs [0006] and [0007] of the published application). From a review of Maris '816, it seems that it is intended to teach an electronic display that could be defined as an "edge" view of a rotating drum-type mechanical gauge of the prior art. This would not lead anyone to Maris '816 claim 1 is directed at "an electronic display for presenting data from a vertical speed source aboard an aircraft", wherein said display comprises:

- a fractional section of an arcuate vertical speed indicator scale; and
- a vertical speed indicator marker;

wherein said fractional section has non-linear graduations marked thereon in the vicinity of said vertical speed indicator marker.

Claim 20

With regard to claim 20, neither Carriker '105 nor Maris '816 teach an elliptically-shaped VSI scale, and the amendment made to claim 20 is non-narrowing, since the requirement that the VSI scale is elliptically-shaped is already contained in the claim. As with claim 2, the Examiner relies upon Carriker '155, col. 8, lines 1-16, as teaching an elliptical VSI scale, but a review of Carriker '155 shows no teaching of the sort. At best, Carriker '155 says that the VSI is "of the moving scale or moving tape type," and the figures accompanying this text show only a tape type display. Also, as with claim 1, the Examiner fails to see the non-linearity of the graduations on the VSI scale of Carriker '155. For at least these reasons, claim 20 as amended is not obvious over the cited references and is, therefore, allowable. As an allowable independent claim, this should also render dependent claims 21-31 allowable.

Claim 32

Claim 32 is a new claim, so there are no present rejections against it. However, anticipating that the Examiner may wish to apply the same art applied against claims 1 and 20, the applicant addresses that art as it might be applied against claim 32. Neither Carriker '105 nor Maris '816 teach an electronic display for presenting data from a vertical speed source aboard an aircraft to a flight crew in which the electronic display comprises a depiction of at least a fractional section of an arcuate vertical speed indicator scale having graduations of vertical speed depicted thereon and a depiction of a vertical speed indicator marker, particularly in which these depictions adjust dynamically to changing flight conditions to increase situational awareness of the flight crew. For at least that reason, claim 32 is allowable.

Claim 2

With regard to claim 2, and beyond the fact that claim 2 is allowable as a proper dependent claim of allowable claim 1, applicants traverse the Examiner's holding that Carriker '155 shows an elliptically-shaped VSI scale. Please refer to the argument above about claim 20 and specifically about Carriker '155, col. 8, lines 1-16.

Claim 3

With regard to claim 3, and beyond the fact that claim 3 is allowable as a proper dependent claim of allowable claim 1, applicants traverse the Examiner's holding that

Carriker '155 shows a VSI marker that shows a vertical speed trend. To the applicants, the term "vertical speed trend" would mean the change of vertical speed with respect to time. While the Examiner points to Carriker '155, col. 7, lines 35-67, applicant asserts that Carriker '155 teaches only the indication of an instantaneous vertical speed and lacks the ability to show a change of vertical speed with respect to time.

Claims 5-7

With regard to claims 5-7, and beyond the fact that these claims are allowable as a proper dependent claims of allowable claim 1, applicants admit that Carriker '155 shows a vertical speed indicator marker comprising a pointer (claim 5), but denies Carriker '155 shows a vertical speed indicator marker comprising a numeric display, as required by either claim 6 or 7. The Carriker '155 marker may point to the graduated scale, but it does not show a numeric display, for example, when the vertical speed is - 15 ft/min.

Claim 9

With regard to claim 9, and beyond the fact that claim 9 is allowable as a proper dependent claim of allowable claim 1, applicants admit that Carriker '155 shows a vertical speed indicator scale that always shows an indicium for a value of 0 (zero) vertical speed. This is a standard feature, without which the display would be of little use to a member of a flight crew.

Claim 10

With regard to claim 10, and beyond the fact that claim 10 is allowable as a proper dependent claim of allowable claim 1, applicants traverse the Examiner's holding that Carriker '155 shows a vertical speed indicator marker comprising a digital readout of the vertical speed of the aircraft. VSI 208 in Carriker '155 shows no digital readout of the vertical speed, contrary to the Examiner's citation of col. 6, line 55 to col. 7, line 12.

Claims 16, 17

With regard to claims 16 and 17, and beyond the fact that these claims are allowable as a proper dependent claims of allowable claim 1, applicants traverse the Examiner's determination that Carriker '155 shows a vertical speed bug having a shaped indicator in a position inside the fractional section of the vertical speed indicator scale, and that the vertical speed bug indicates a selected vertical speed value. What

Carriker '155 shows is a air speed bug 222 air speed indicator 202. Since there is no "vertical speed bug" in Carriker '155, it cannot point to a location on the fractional section of said vertical speed indicator scale equivalent to the selected vertical speed value.

Claim 21

With regard to claim 20, and beyond the fact that claim 21 is allowable as a proper dependent claim of allowable claim 20, applicants admit that Carriker '155 shows a vertical speed indicator marker that is equidistant between an upper value and a lower value on the fractional section of the vertical speed. This is a standard feature, without which the display would be of little use to a flight crew member.

The Examiner has rejected claims 4, 12, 13, 15, 24, 25 and 27 under 35 U.S.C. §103(a) as obvious over Carriker '155 and Maris '816 as applied to claims 1 and 20, and further in view of US Patent 6,154,151 to McElreath ("McElreath '151"). Applicants traverse this rejection.

Claim 4

With regard to claim 4, and beyond the fact that claim 4 is allowable as a proper dependent claim of allowable claim 1, applicants admit that McElreath '151 may show a movable marker capable of showing a vertical speed trend by its motion, but McElreath '151 still fails to show an arcuate VSI, so the full requirements of claim 4 are not met by the cited art combination, and claim 4 is allowable.

Claims 12, 24

With regard to claim 12 and 24, and beyond the fact that claims 12 and 24 are allowable as proper dependent claims of allowable claims 1 and 20, respectively, applicants admit that McElreath '151 may show TCAS advisory indicators along a periphery of the VSI scale during a TCAS advisory condition, but McElreath '151 still fails to show an arcuate VSI, so the full requirements of claims 12 and 24 are not met by the cited art combination, and the claims are allowable.

Claims 13, 25

With regard to claim 13 and 25, and beyond the fact that claims 13 and 25 are allowable as proper dependent claims of allowable claims 12 and 24, respectively,

applicants traverse the Examiner's determination that McElreath '151 shows an enlarged size in the electronic display during a TCAS advisory condition. The Examiner is invited to specifically quote the language relied upon within the cited area of col. 8, line 56, through col. 9, line 11. In any case, McElreath '151 still fails to show an arcuate VSI, so the full requirements of claims 13 and 25 are not met by the cited art combination, and the claims are allowable.

Claims 15, 27

With regard to claim 15 and 27, and beyond the fact that claims 15 and 27 are allowable as proper dependent claims of allowable claims 12 and 24, respectively, applicants agree with the Examiner's determination that McElreath '151 shows TCAS advisory marks in the colors of red and green. These are the conventional colors and, without their use, the display would be of little use to the pilot.

The Examiner has rejected claims 8, 11, 22, 23 and 28-31 under 35 U.S.C. §103(a) as obvious over Carriker '155" and Maris '816 as applied to claims 1 and 20, and further in view of US Patent 4,914,733 to Gralnick ("Gralnick '733"). Applicants traverse this rejection.

Claims 8, 22

The rejections of claims 8 and 22 are mooted by their cancellation.

Claims 11, 23, 30

With regard to claims 11, 23 and 30, and beyond the fact that claims 11, 23 and 30 are allowable as proper dependent claims of allowable claims 10, 20 and 28, respectively, applicants traverse the Examiner's determination that Gralnick '733 shows a digital readout of the instantaneous vertical speed bounded in the range from -9999 to +9999 ft/min. None of the references cited by the Examiner even show a digital readout of the instantaneous vertical speed, regardless of the range.

Claims 28, 29, 31

With regard to claims 28, 29 and 31, and beyond the fact that claims 28, 29 and 31 are allowable as proper dependent claims of allowable claim 20, applicants traverse the Examiner's determination that Gralnick '733 shows that the vertical speed indicator marker is shown parked at the edge of the fractional section of the VSI scale when the

vertical speed source indicates an aircraft vertical speed exceeding an absolute value of 6000 ft/min, as required by claim 28. In the applicants' reading, nothing in the cited section of Gralnick '733 describes what happens when the instantaneous vertical speed goes off scale. If the Examiner believes this is stated in Gralnick '733, the Examiner is invited to quote the passage. If the information is not stated in Gralnick '733, then claim 28 is allowable and claims 29 and 31 are also allowable as proper dependent claims.

The Examiner has rejected claims 14 and 16 under 35 U.S.C. §103(a) as obvious over Carriker '155, Maris '816 and McElreath '151 as applied to claims 12 and 24, and further in view of Gralnick '733". These rejections are mooted by cancellation of these claims.

The Examiner has rejected claims 18 and 19 under 35 U.S.C. §103(a) as obvious over Carriker '155 and Maris '816 as applied to claim 16 and further in view of published US application 2003-0132860 to Feyereisen ("Feyereisen '860"). The Examiner's citations to Feyereisen '860 have been reviewed, and the applicants believe that Feyereisen '860 does not even teach an arcuate VSI scale, much less one possessing a vertical speed bug. As claim 16 is believed to be allowable over the cited references, claims 18 and 19 are also allowable as proper dependent claims.

Conclusion

After amendment, claims 1-7, 9-13, 15-21, 23-25 and 27-31 are pending in the present application. The applicants thank the Examiner for the careful claim-by-claim analysis provided in the claim rejections, as the detail provided allowed the applicants to understand the nature of the Examiner's arguments.

The applicants respectfully submit that the claims are now in condition for allowance and such action is earnestly requested.

Respectfully submitted,

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